AMENDMENTS TO THE CLAIMS

1 (canceled)

2 (Currently amended). An image processor ~~as claimed in claim 1~~ comprising:

a multilevel error diffusion processing unit comprising:

a quantizing unit that quantizes successively input pixel data based on output values distributed at predetermined tone differences;

a quantization error detecting unit that detects an error of quantization of the pixel data;

a peripheral error calculating unit that integrates the error of quantization of the pixel data detected by said quantization error detecting unit with respect to an error of quantization of peripheral pixel data; and

an error superimposing unit that feedback-adds an integration error calculated by said peripheral error calculating unit to pixel data input next;

a random noise generating unit that generates random noise in accordance with a tone level of the input pixel data; and

a noise superimposing unit that superimposes random noise generated by said random noise generating unit on the pixel data before multilevel error diffusion processing is performed on the pixel data by said multilevel error diffusion processing unit,

wherein said quantizing unit quantizes the pixel data based on a plurality of reference levels so that tone reproduction data output to an outside has at least two tone levels.

3 (Original). An image processor as claimed in claim 2,

wherein said reference levels are set so that a tone width of a plurality of areas divided based on the reference levels increases with the tone level and is narrow in a highlighted area where the tone level is highest.

4 (Original). An image processor as claimed in claim 2,

wherein each of the pixel data has a tone level corresponding to an area.

5 (Currently amended). An image processor as claimed in claim ~~1~~ 2, further comprising:

a simply quantizing unit that quantizes pixel data on which the random noise is not superimposed; and

a selector that selects either one of multilevel-error-diffusion-processed pixel data and simply quantized pixel data in accordance with an attribute of the pixel data, and outputs the selected data as tone reproduction data.

6 (Original). An image processor as claimed in claim 5,

wherein when the attribute of the pixel data is a character edge, said selector selects the simply quantized pixel data.

7 (Currently amended). An image processor ~~as claimed in claim 1~~ comprising:

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a multilevel error diffusion processing unit comprising:

a quantizing unit that quantizes successively input pixel data based on output values distributed at predetermined tone differences;

a quantization error detecting unit that detects an error of quantization of the pixel data;

a peripheral error calculating unit that integrates the error of quantization of the pixel data detected by said quantization error detecting unit with respect to an error of quantization of peripheral pixel data; and

an error superimposing unit that feedback-adds an integration error calculated by said peripheral error calculating unit to pixel data input next;

a random noise generating unit that generates random noise in accordance with a tone level of the input pixel data; and

a noise superimposing unit that superimposes random noise generated by said random noise generating unit on the pixel data before multilevel error diffusion processing is performed on the pixel data by said multilevel error diffusion processing unit,

wherein for input pixel data, the random noise is generated, for each pixel data, with a noise component having a fixed amplitude component and a noise component whose amplitude is proportional to the tone level of the input pixel data.

8 (Currently amended). An image processor as claimed in claim ~~1~~ 7,

wherein the successively input pixel data comprise a plurality of color data necessary for color reproduction, and said random noise is generated for each color.

9 (Currently amended). An image processing method comprising the steps of:

quantizing successively input pixel data based on output values distributed at predetermined tone differences;

detecting an error of quantization of the pixel data;

integrating the detected error of quantization of the pixel data with respect to an error of quantization of peripheral pixel data;

feedback-adding the calculated integration error to pixel data input next;

generating random noise in accordance with a tone level of the input pixel data; and

superimposing the generated random noise on the pixel data before the pixel data is quantized,

wherein said quantizing unit quantizes the pixel data based on a plurality of reference levels so that tone reproduction data output to an outside has at least two tone levels.

10 (Currently amended). ~~A computer-readable program product that stores a program for controlling an image processor so as to execute the steps of~~ A method for initiating program control in a system comprising:

quantizing successively input pixel data based on output values distributed at predetermined tone differences;

detecting an error of quantization of the pixel data;

integrating the detected error of quantization of the pixel data with respect to an error of quantization of peripheral pixel data;

feedback-adding the calculated integration error to pixel data input next;

generating random noise in accordance with a tone level of the input pixel data; and

superimposing the generated random noise on the pixel data before the pixel data is quantized,

wherein said quantizing quantizes the pixel data based on a plurality of reference levels so that tone reproduction data output to an outside has at least two tone levels.

11. (Newly added). An image processor as claimed in claim 7, further comprising:

a simply quantizing unit that quantizes pixel data on which the random noise is not superimposed; and

a selector that selects either one of multilevel-error-diffusion-processed pixel data and simply quantized pixel data in accordance with an attribute of the pixel data, and outputs the selected data as tone reproduction data.

12. (Newly added). An image processor as claimed in claim 2, wherein the successively input pixel data comprise a plurality of color data necessary for color reproduction, and said random noise is generated for each color.